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PUBLIC UTILITIES COMM.
STATE OF CALIF.

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INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3559

SOUTHERN PACIFIC COMPANY

IN RE ACCIDENT

AT DAVIS, CALIF., ON

FEBRUARY 24, 1954

SUMMARY

Date:	February 24, 1954	
Railroad:	Southern Pacific	
Location:	Davis, Calif.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 4113 East	: Extra 4231 East
Engine numbers:	4113	: 4231
Consists:	82 cars, caboose	: 29 cars, caboose
Speeds:	Standing	: 21 m. p. h.
Operation:	Timetable, train orders, and automatic block-signal system; yard limits	
Tracks:	Double; tangent; 0.145 percent descending grade eastward	
Weather:	Dense fog	
Time:	2:50 a. m.	
Casualties:	1 killed; 2 injured	
Cause:	Failure properly to control speed of following train moving within yard limits	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3559

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

SOUTHERN PACIFIC COMPANY

April 1, 1954

Accident at Davis, Calif., on February 24, 1954, caused
by failure properly to control the speed of the
following train moving within yard limits.

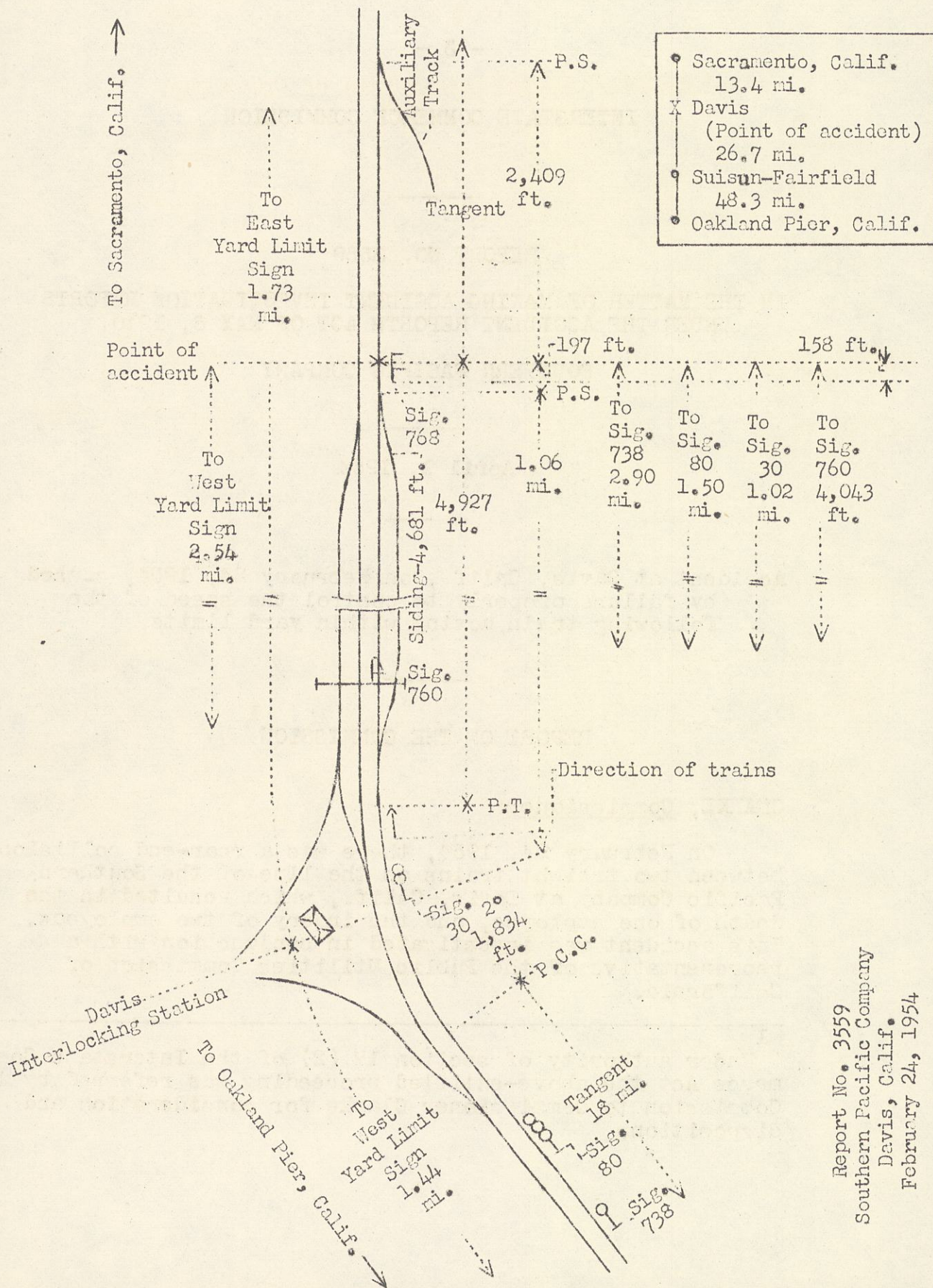
REPORT OF THE COMMISSION¹

CLARKE, Commissioner:

On February 24, 1954, there was a rear-end collision between two freight trains on the line of the Southern Pacific Company at Davis, Calif., which resulted in the death of one employee, and the injury of two employees. This accident was investigated in conjunction with a representative of the Public Utilities Commission of California.

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Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



Report No. 3559
Southern Pacific Company
Davis, Calif.
February 24, 1954

Location of Accident and Method of Operation

This accident occurred on that part of the Western Division extending between Oakland Pier and Sacramento, Calif., 88.4 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by timetable, train orders, and an automatic block-signal system. At Davis, 75.0 miles east of Oakland Pier, a siding 4,681 feet in length parallels the eastward main track on the south. The east switch of this siding is 1.06 miles east of the interlocking station. Yard limits extend between points, respectively, 1.44 miles west and 1.73 miles east of the interlocking station. The accident occurred on the eastward main track within yard limits at a point 2.54 miles east of the west yard limit sign and 197 feet east of the east siding-switch at Davis. From the west there are, in succession, a tangent more than 18 miles in length, a compound curve to the right, having a maximum curvature of $2^{\circ}30'$, 1,834 feet, and a tangent 4,927 feet to the point of accident and a considerable distance eastward. At the point of accident the grade is 0.145 percent descending eastward.

Automatic signal 738, semi-automatic signals 80 and 30, and automatic signals 760 and 768, governing east-bound movements on the eastward main track, are located, respectively, 2.90 miles, 1.50 miles, 1.02 miles, 4,043 feet, and 158 feet west of the point of accident. Signals 738, 80, and 30 are of the searchlight type and are approach lighted. Signals 760 and 768 are of the two-arm lower-quadrant semaphore type and are continuously lighted. The night aspects applicable to this investigation and the corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
738)	Yellow	PROCEED NOT EXCEEDING	APPROACH
80)		MEDIUM SPEED, PREPARED	SIGNAL
		TO STOP SHORT OF NEXT HOME SIGNAL	YELLOW

Trains exceeding medium speed must reduce to medium speed before engine reaches the signal if advance view of the signal permits. After entering the block speed may be resumed provided next signal can be seen displaying proceed indication (green aspect)

30	Green	PROCEED EXCEPT ON DIVERGING ROUTE	BLOCK SIGNAL GREEN
760	Green-over- yellow	PROCEED NOT EXCEEDING MEDIUM SPEED, PREPARED TO STOP SHORT OF NEXT HOME SIGNAL	BLOCK SIGNAL YELLOW
* * *			
768	Red-over- yellow	STOP	BLOCK SIGNAL RED

The controlling circuits are so arranged that when the route is lined for an east-bound movement on the eastward main track, the blocks of signals 738, 80, and 30 are unoccupied, and the block of signal 760 is occupied, signals 738, 80, and 30 each indicate Approach and signal 760 indicates Stop. When the route is lined for an east-bound movement, the blocks of signals 30 and 760 are unoccupied, and the block of signal 768 is occupied, signal 30 indicates Proceed, signal 760 indicates Approach, and signal 768 indicates Stop.

This carrier's operating rules read in part as follows:

DEFINITIONS

Speeds:

Medium Speed. A speed not exceeding forty miles per hour.

* * *

With Caution. To run at reduced speed, according to conditions, prepared to stop short of a train
* * *

34. Each member of engine crew must, and each member of train crew must when practicable, identify by name each signal affecting the movement of his train as soon as it becomes visible * * * to him and, in addition, communicate the aspect of each automatic block, interlocking, absolute and train order signal. Other members of the crew within hearing distance must acknowledge at once and repeat the name and aspect of the signal as soon as it can be verified.

.93. * * * protection against second and inferior class trains, extra trains and engines is not required within yard limits.

Second and inferior class trains, extra trains and engines must move with caution on main track within yard limits unless track is known to be clear by signal indication.

* * *

Timetable special instructions read in part as follows:

* * * When fog * * * or other conditions obscure track or signals, speed of trains must be so reduced as to permit strict observance of signals * * *

The maximum authorized speed for freight trains in the vicinity of the point where the accident occurred is 40 miles per hour.

Description of Accident

Extra 4113 East, an east-bound freight train, consisted of engine 4113, 82 cars, and a caboose. This train passed Suisun-Fairfield, 26.7 miles west of Davis, at 1:26 a. m., and stopped on the eastward main track within yard limits at Davis at 2:05 a. m., with the engine about 250 feet east of the interlocking station. About 2:20 a. m., after the tender of the engine was supplied with water, the train moved eastward and stopped on the eastward main track with the rear end 2.54 miles east of the west yard-limit sign, 1.10 miles east of the interlocking station, and 158 feet east of signal 768. A few minutes later, after the engine and 40 cars at the front of the train had been detached to set off a car which had become defective, the rear end was struck by Extra 4231 East.

Extra 4231 East, an east-bound freight train, consisted of engine 4231, 29 cars, and a caboose. This train departed from Suisun-Fairfield at 1:35 a. m., passed signal 738, which indicated Approach, passed the west yard-limit sign at Davis, and passed signal 80, which indicated Approach. It passed Davis interlocking station at 2:26 a. m., passed signal 30, which indicated Proceed, passed signal 760, which indicated Approach, passed signal 768, which indicated Stop, and while moving at a speed of 21 miles per hour it struck the rear end of Extra 4113 East.

The caboose and the rear two cars of Extra 4113 East were derailed. The caboose and the rear car were badly damaged, and the other derailed car was slightly damaged. Extra 4231 East stopped with the front end 38 feet east of the point of collision. The engine was derailed. It stopped upright, with the front end fouling the westward main track, and the rear end on the track structure of the eastward main track. The engine was somewhat damaged. The engine cab was demolished. No other equipment of this train was derailed.

The front brakeman of Extra 4231 East was killed. The engineer and the fireman of Extra 4231 East were injured.

There was a dense fog at the time of the accident, which occurred about 2:30 a. m.

Engine 4231 is of the 4-8-8-2, single-expansion, articulated, cab-in-front type.

Discussion

When Extra 4113 East stopped at Davis the engineer and the fireman were on the engine, and the conductor and the flagman were in the caboose. The front brakeman had alighted from the engine to inspect the front portion of the train. During this inspection he found an overheated journal on the fortieth car. After he ascertained from the operator that an auxiliary track located 2,606 feet east of the east siding-switch was clear of cars, he returned to the engine and informed the engineer that it would be necessary to set the car off on the auxiliary track. The train then proceeded eastward. Visibility was materially restricted by fog, and as the eastward movement was started the conductor threw off a lighted red fusee. When the train stopped at the auxiliary-track switch, the front brakeman detached the

engine and the first 40 cars. At this time visibility was limited by fog to the extent that lamp signals could not be transmitted any appreciable distance, and it was necessary for the brakeman to signal the engineer by manipulation of the angle cock at the rear of the forward portion of the train and without the use of hand signals. A short time after the train stopped, the conductor and the flagman, who had alighted from the caboose, heard the sound of an approaching train. The flagman immediately proceeded westward and gave stop signals with a lighted red fusee. He said that as he passed signal 768 he observed that the signal was lighted and that it indicated Stop. He had reached a point a short distance west of this signal when the engine of Extra 4231 East passed him. Both the conductor and the flagman said that the speed of Extra 4231 East was not materially reduced before the collision occurred.

As Extra 4231 East was approaching Davis the engineer, the fireman, and the front brakeman were maintaining a lookout ahead from their respective positions in the cab of the engine. The conductor and the flagman were in the caboose. The brakes of this train had been applied and released before the train departed from Suisun-Fairfield and had functioned properly when used en route. The headlight was lighted brightly. Because of fog, signal aspects were not visible to the engine-men until the engine closely approached the signals. Signals 738 and 80 each indicated Approach, and the members of the crew on the engine called each indication. The speed was reduced to about 10 miles per hour in the vicinity of the interlocking station. Signal 30 indicated Proceed, and after the train passed this signal the speed was increased to 21 or 22 miles per hour. Signal 760 indicated Approach, and the members of the crew on the engine called the indication. The engineer said that because of the fog he was unable to see landmarks and as the train approached signal 768 he became confused as to his location. He said that he was preparing to make a brake application when this signal, which indicated Stop, became visible to him. At approximately the same time, he saw the red marker lights of the preceding train. When he saw the signal he immediately made an emergency application of the brakes. The collision occurred before the speed of the train was appreciably reduced. The fireman said that he and the front brakeman saw the signal and called the indication at approximately the same time that the engineer applied the brakes in emergency. The engine-men said that they did not observe a lighted fusee in the vicinity of the rear end of

the preceding train. The members of the crew in the caboose said that the brakes were applied in emergency either immediately before or at the time they felt the impact of the collision.

According to the tape of the speed-recording device, the speed of the train was reduced from about 20 miles per hour in the vicinity of signal 738 to less than 10 miles per hour in the vicinity of signal 60. The speed was increased to 21 or 22 miles per hour after the engine passed signal 30. The emergency brake application did not become effective in retarding the speed before the collision occurred.

This accident occurred within yard limits. Under the rules governing the operation of trains within yard limits, except when the track was known to be clear by signal indication Extra 4231 East was required to be operated in such manner that it could be stopped short of a preceding train. The indication of signal 768 required that Extra 4231 East be stopped before passing the signal. When fog conditions obscure signals it is required that the speed of trains be so reduced as to permit strict observance of signals.

Cause

This accident was caused by failure properly to control the speed of the following train moving within yard limits:

Dated at Washington, D. C., this first day of April, 1954.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,

Secretary.